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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,783	02/02/2007	Toru Torii	296452US3PCT	4185
22850 7590 06/24/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER HAIDER, SAIRA BANO				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
06/24/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/593,783

Applicant(s)

TORII ET AL.

Examiner

SAIRA HAIDER

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 and 15-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-14 and 19-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/GS-08)
- _____ Paper No(s)/Mail Date 09/22/2006

- 4) ☐ Interview Summary (PTO-413)
- _____ Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group II, Claims 9-14 and 19-20 in the reply filed on 04/12/2010 is acknowledged. The traversal is on the ground(s) that the different group of invention possess a special technical feature. This is not found persuasive because the special technical feature of the inventions is anticipated or obvious over Higuchi (US 7,268,167). Specifically, attention is drawn to Fig. 6 which discloses two continuous phases joining an dispersion phase to form microdroplets, wherein Higuchi recognizes that the components of the continuous and dispersion phases can be oil and water or water and oil, respectively (col. 5, line 65 to col. 6, line 2; col. 6, lines 49-55). Thus Higuchi reads on the special technical feature of claim 1.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Quake (US 2002/0058332).

4. Quake discloses microfluidic devices comprising sorting schemes, wherein two different droplets (reads on the claimed first droplet and satellite droplet) are produced, enter an expanded input region and then are separated via a branching channels [0113-0114; Fig 15A and B]. Quake notes that two or more droplet extrusion regions can be present which introduce droplets into the main channel, thus the claimed three droplet scheme of claim 20 is readily envisaged [0119].

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higuchi (US 7,268,167) in view of Quake (US 2002/0058332).

7. Higuchi discloses two continuous phases joining an dispersion phase to form microdroplets, wherein Higuchi recognizes that the components of the continuous and dispersion phases can be oil and water or water and oil, respectively (Fig. 6; col. 5, line 65 to col. 6, line 2; col. 6, lines 49-55). Thus the reference readily envisages a continuous phase of water and a dispersion phase of oil, thus resulting in the formation of the dual droplets.

8. Higuchi fails to disclose the claimed control devices and sequential production of the droplets, thus attention is directed to Quake. Microfluidic devices are disclosed by Quake, wherein the pressures of the fluids at the inlet streams are balanced so that the droplet fluid enters the main channel at a fixed frequency [0290]. Quake teaches that because the frequency with which droplets are sheared off into the main channel depends on the pressure difference between the different fluids, the frequency can be readily adjusted by simply adjusting the pressures of the individual fluid lines [0290]. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the pressure of the inlet streams in the invention of Higuchi as taught by Quake. The motivation to control the pressures of the individual lines of the two inlet streams is to

control the frequency at which the droplets are sheared off, and thus ensure sequentially production at a regular period.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAIRA HAIDER whose telephone number is (571)272-3553. The examiner can normally be reached on Monday-Friday from 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James J. Seidleck/
Supervisory Patent Examiner, Art Unit 1796

Saira Haider
Examiner
Art Unit 1796